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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,042	10/29/2003	Gregory Steintal	041358-0285	1202
22428	7590	06/01/2006	EXAMINER	
FOLEY AND LARDNER LLP			LE, TOAN M	
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Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	Application No. 10/698,042	Applicant(s) STEINTHAL ET AL.	
	Examiner Toan M. Le	Art Unit 2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 March 2006.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 8-24, 34-36 and 38-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-24, 34-36 and 40 is/are rejected.
- 7) ☒ Claim(s) 38 and 39 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 8-10, 12, 14-18, 20-24, 34-36, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobsen et al. (US Patent No. 6,198,394) in view of Kovacs et al. (US Patent No. 5,833,603).

Referring to claim 1, Jacobsen et al. disclose a biological agent detection apparatus (figure 4A), comprising:

a substrate;

an array of two or more sensors arranged on the substrate, wherein at least a first one of the sensors includes a sensing element configured to detect a biological agent (col. 10, lines 54-67; figure 4A, Block 304; col. 16, lines 5-17 and lines 35-39);

a power module for supplying power to the detection apparatus (figures 4A, 5A, 6A);

a pick-up antenna (figures 4A, 5A, 6A);

a processing module directly coupled to each of the sensors and configured to process signals received from the two or more sensors to produce an output signal (col. 16, lines 24-28);  
and

a communication module configured to provide information to a user in response to the output signal having a value at or above a threshold value (col. 12, lines 21-27),

wherein the array of two or more sensors includes:

an activating unit configured to activate only one of the two or more sensors at any point in time, in order to reduce power consumption of the apparatus (col. 16, lines 29-34).

As to claim 2, Jacobsen et al. disclose a biological agent detection apparatus, wherein the processor is configured to execute a first process that detects a change in an environmental condition, and a second process that identifies an origin of the change in the environmental condition (col. 16, lines 35-39).

Referring to claim 3, Jacobsen et al. disclose a biological agent detection apparatus, wherein the second process includes a pattern recognition algorithm 420 (figure 6A).

As to claim 4, Jacobsen et al. disclose a biological agent detection apparatus, further including a communication module configured to provide the output signal to an external intelligence device (col. 14, lines 11-19; figure 6A).

Referring to claim 5, Jacobsen et al. disclose a biological agent detection apparatus, wherein the communication module includes one of a wireless interface and a physical bus interface for communicating with the external intelligence device (col. 17, lines 25-28).

As to claim 8, Jacobsen et al. disclose a biological agent detection apparatus, wherein the communication module includes one of a LED, speaker, buzzer and vibration mechanism (col. 9, lines 21-33; col. 11, lines 41-50; figure 3).

Referring to claim 9, Jacobsen et al. disclose a biological agent detection apparatus, wherein the wireless interface device includes one of an RF transmitter, an RF transceiver, an IR transmitter and an IR transceiver (figure 4A).

As to claim 10, Jacobsen et al. disclose a biological agent detection apparatus, wherein the physical bus interface includes one of an RS-232 port, a USB port and a Firewire port (figure 6A).

Referring to claim 12, Jacobsen et al. disclose a biological agent detection apparatus, wherein at least a second one of the sensors is a chemical sensor 304 (figure 4A).

As to claim 16, Jacobsen et al. disclose a biological agent detection apparatus, wherein the sensors and the processing module are integrated on the substrate (figure 4A).

Referring to claim 17, Jacobsen et al. disclose a biological agent detection apparatus, further including an attachment mechanism for allowing a user to wear the apparatus (figures 1 and 3).

As to claim 18, Jacobsen et al. disclose a biological agent detection apparatus, wherein the attachment mechanism includes one of a clip and a pin (figures 1 and 3).

Referring to claim 20, Jacobsen et al. disclose a biological agent detection apparatus, wherein the apparatus is used to diagnose a disease or determine a biological agent based on sampling the atmosphere or a bodily fluid (col. 16, lines 5-17 and lines 35-39).

As to claim 21, Jacobsen et al. disclose a biological agent detection apparatus, wherein a second one of the sensors includes a sensing element configured to detect a biological element different from the biological agent detectable by the first sensor (col. 16, lines 5-17 and lines 35-39).

Referring to claim 22, Jacobsen et al. disclose a biological agent detection apparatus, further comprising a communication module configured to communicate with an external processor (figure 6A).

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As to claim 23, Jacobsen et al. disclose a biological agent detection apparatus, wherein the communication module includes a wireless transmitter device (col. 17, lines 25-28; figures 4A and 6A).

Referring to claim 24, Jacobsen et al. disclose a biological agent detection apparatus, wherein the wireless transmitter device includes one of an RF transmitter and an IR transmitter (figures 4A and 6A).

As to claim 36, Jacobsen et al. disclose a wakeup circuitry coupled to the power module and configured to activate the two or more sensors at periodic intervals, and to turn off the two of more sensors at all other times between adjacent ones of the periodic intervals (col. 9, lines 8-20; col. 16, lines 29-34).

Referring to claim 40, Jacobsen et al. disclose a biological agent detection apparatus, wherein the apparatus is maintained in a lower-power-consumption ON mode during the all other times between the adjacent ones of the periodic intervals (col. 9, lines 8-20; col. 15, lines 26-29).

Jacobsen et al. do not mention that the power is supplied by an external RF field received by the antenna as in claim 1.

Jacobsen et al. do not mention a transistor housed on the substrate and configured to reduce noise and switch resistance for the two or more sensors as in claim 34.

Jacobsen et al. do not mention analogue circuitry configured to provide gain, baseline tracking and radiometric sensing as in claim 35.

Kovacs et al. disclose a biological agent detection apparatus including a power is supplied by an external RF field received by an antenna (col. 3, lines 57-67; col. 4, lines 1-6).

Kovacs et al. also disclose a transistor housed on the substrate and configured to reduce noise and switch resistance for the two or more sensors and analogue circuitry configured to provide gain, baseline tracking and radiometric sensing (col. 15, lines 66-67; col. 16, lines 1-11).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have applied the teaching of Kovacs et al. reference into the reference of Jacobsen et al. for reducing the need of battery or other source of electrical power and for filtering unwanted interference signals.

As to claims 14-15, the dimension of the apparatus is a matter of choice and would not involve patentable invention as the prior art recognizes the dimension with respect to the specification application.

Claims 11, 13, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobsen et al. and Kovacs et al. as applied to claims 1-5, 8-10, 12, 16-18, 20-24, and 34-36 above, and further in view of Lewis et al. (US Patent No. 6,759,010).

Referring to claims 11, 13, and 19, neither Jacobsen et al. or Kovacs et al. disclose at least two of the sensors are polymer composite sensors and wherein the sensing element of the first sensor is selected from the group consisting of a polymer composite sensor, a surface modified carbon black sensor, a sol-gel encapsulated enzyme, a biopolymer, a self assembling monolayer, an intrinsically conducting polymer, a carbon nanotube composite, a nanogold composite and a nanoscale polymer composite and is an intrinsically conducting polymer selected from the group consisting of polyaniline and polythiophene.

Lewis et al. disclose an apparatus, wherein at least two of the sensors are polymer composite sensors and wherein the sensing element of the first sensor is selected from the group

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consisting of a polymer composite sensor, a surface modified carbon black sensor, a sol-gel encapsulated enzyme, a biopolymer, a self assembling monolayer, an intrinsically conducting polymer, a carbon nanotube composite, a nanogold composite and a nanoscale polymer composite and is an intrinsically conducting polymer selected from the group consisting of polyaniline and polythiophene (col. 12, lines 16-34; col. 41, lines 35-41 and lines 52-53).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have applied the teaching of Lewis et al. into the references of Jacobsen et al. and Kovacs et al. to improve biological/chemical agents sensors in identifying a molecule, the molecule's diffusion coefficient, and the specific activity, structure and function of the molecule detected.

*Allowable Subject Matter*

Claims 38-39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The reason for allowance of the claims 38-39 is the inclusion of at least one shift register for selectively accessing one of the two or more sensors, decoding circuitry for decoding an output of the at least one shift register, a switch for receiving the decoded outputs of the decoding circuitry and for toggling a current based on the decoded outputs, and a resistive sensor element for receiving the toggled current, wherein the toggled current is utilized to access only one of the two or more sensors at any point in time; and a controlling unit configured to control the processing module to cause the processing module to read out the signals from the two or

more sensors in a particular sequential order, so as to prioritize certain sensors of the two or more sensors with respect to other sensors of the two or more sensors.

***Response to Arguments***

Applicant's arguments filed 3/20/06 have been fully considered but they are not persuasive.

Referring to claim 1, Applicant argues that "Presently pending independent claim 1 has been amended to recite that the array of two or more sensors includes an activating unit configured to activate only one of said two or more sensors at any point in time, in order to reduce power consumption of the apparatus. No such feature is taught or suggested by either Jacobsen et al. or by Kovacs et al."

Answer: Jacobsen et al. disclose "The sensor probe 600 communicates with the remainder of the system via a transceiver 660 which is connected to the micro-computer 650 and to an antenna 664. When information is desired by a command unit, the micro-computer 650 activates the appropriate sensor(s) and relay the desired information." (col. 16, lines 29-34)

Thus, Jacobsen et al. disclose the limitation claim 1.

As to claim 36, Applicant argues that "Claim 36 has been amended to more clearly distinguished over these teachings of Jacobsen et al., whereby claim 36 now recites wakeup circuitry coupled to the power module and configured to activate the two or more sensors at periodic intervals, and to turn off the two of more sensors at all other times between adjacent ones of the periodic intervals."

Answer: Jacobsen et al. disclose "To power the respective sensors, body-LAN 168 and the master controller 128, a battery 184 and a power control 188 are also provided. Typically,

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the master controller 128 will be programmed to draw power from the battery during predetermined periods only to prolong battery life. For example, the sensors may be powered for 2 seconds of every minutes, thereby allowing updating of physiological data with little consumption of power." (col. 9, lines 8-15).

Therefore, Jacobsen et al. disclose the limitation of claim 36.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M. Le whose telephone number is (571) 272-2276. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Toan Le

May 25, 2006

**BRYAN BUI  
PRIMARY EXAMINER**

